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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,554	08/01/2003	Yutaka Takano	9319H-000530	2576
27572	7590	01/10/2005	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C.			HSIEH, SHIH WEN	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			2861	

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,554

Applicant(s)

TAKANO ET AL.

Examiner

Shih-wen Hsieh

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 8-12 is/are rejected.
- 7) ☒ Claim(s) 3-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8-1-03; 9-9-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed on Nov. 5, 2003 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered. (No 1449 being found for IDS filed on Nov. 5, 2003).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Lines 4-5 of this claim recites: "a base which supports said carriage in a manner slidable in a vertical direction" is unclear. Because the term carriage in this claim can be meant either the main carriage (6, fig. 1) or the sub-carriage (9, fig. 1), both of them slide in X-axis direction, which is the main-scanning (refer to [0083]), and X-axis direction is horizontal as shown in fig. 1, not vertical as this claim recited. Please clarify.

Since almost most of the liquid jet printer slides horizontally, hence NO art rejection is set up for this claim in this office action.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US Pat. No. 6,629,787 B2).

Lee et al. teach:

A liquid droplet ejection apparatus comprising:

a function liquid droplet ejection head (33a, fig. 4) disposed such that a nozzle surface thereof lies in parallel with a workpiece (P, fig. 2), refer to col. 4, line 67 to col. 5, line 4;

gap measuring means (40, figs. 3-5) for measuring a workpiece gap between a workpiece surface and a nozzle surface, refer to col. 4, lines 52-54 and col. 5, lines 5-15; and

gap adjusting means (100, figs. 3-5) for adjusting the workpiece gap (G, figs. 4 and 5) based on a result of measurement by said gap measuring means, said adjusting being made by relative movement of said function liquid droplet ejection head and said workpiece in a vertical direction, refer to col. 4, lines 46-48 and col. 5, lines 15-64. Note: the vertical direction can be seen from fig. 4 and fig. 5.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Arai et al. (US Pat. No. 5,949,447).

In regard to:

Claim 8:

Lee et al. further teach:

plural kinds of function liquid droplet ejection heads (33a, figs. 4 and 5) having function liquids to be filled and/or specification which are different from one another (note: plural kinds of function liquid droplet ejection heads are well known in the art, it can be in a plural head, each head contains one kind of liquid; or just like Lee et al.'s invention, the head 33a contains a number of arrays, each array associated with one kind of liquid or all of the nozzles contained in the single head 33a are divided into blocks/groups each blocks/groups associated with one kind of liquid; and it is also well known in the art that one the liquid is different, then its composition or specification are different);

a carriage (31, figs. 3-5) for mounting thereon said plural kinds of function liquid droplet ejection heads, refer to col. 4, lines 59-64.

The device of Lee et al. DIFFERS from claim 8 in that it does not teach:

a head stocker for holding in stock said plural kinds of function liquid droplet ejection heads in a replaceable manner; and

a head transfer mechanism for transferring said function liquid droplet ejection heads between said carriage and said head stocker.

Arai et al. teach in their fig. 4 an ink jet printer having exchangeable recording device, in which, whenever an instruction for changing an ink cartridge is given (in most of the situations an ink jet head is an integral part of an ink jet cartridge), then through the steps specified in fig. 4, the ink cartridge is exchanged, refer to col. 10, lines 8-45. Please note that, although Arai et al. do not specifically teach a head stocker and a head transfer mechanism as those in the instant application, it would have been an obvious matter that once the cartridge is changed, the new cartridge just been place in the carriage will have to be picked from a place, such as a stocker, and the new cartridge picked from the place and installed to the carriage will have to be transferred from the place to the carriage, and this transfer is accomplished by a cartridge transfer mechanism.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Lee et al. to include a place where stock of new cartridges are stored, and to be transferred to the carriage and installed into the carriage upon receipt of an instruction, such that a new cartridge will replace an old one leading to a satisfactory printing image.

Claim 9:

The apparatus according to claim 8. further comprising:

function liquid supply means for independently supplying said plural kinds of function liquid ejection heads with the function liquids, wherein said function liquid supply means comprises a plurality of function liquid tanks corresponding to said plural kinds of function liquid droplet ejection heads, and wherein said plurality of function liquid tanks and said plural kinds of function liquid droplet ejection heads are respectively connected to each other through a tube.

Rejection:

The above features are well known in the art, and generally referred to as off-axis ink supply system or off-axis printer, in which separated ink tank are located in a non-printing area, and using tubes from each of the tanks to connect each of the print heads, refer to MPEP 2144.03, In re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

9. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Sakino et al. (US Pat. No. 5,984,470).

In regard to:

Claim 10:

The device of Lee et al. DIFFERS from claim 10 in that it does not teach:

A method of manufacturing an electrooptic device, comprising forming a film-forming part on the workpiece by the function liquid droplet by means of the liquid droplet ejection apparatus as set forth in claim 1.

Sakino et al. teach an ink jet printer used to produce a color filter, refer at least col. 1, lines 8-15. and the color filter produced by the ink jet printer is as shown in figs. 1 and 2.

Therefore it would have been an obvious matter that by using ink jet technologies, a color filter can be produced and is to be used for a color liquid crystal display adapted for use in a color television.

Claim 11:

An electrooptic device in which a film-forming part is formed on the workpiece by the function liquid droplet by means of the liquid droplet ejection apparatus as set forth in claim 1 (claim 11); and

An electronic device having mounted thereon the electrooptic device as set forth in claim 11 (claim 12).

Rejection:

These two claims are rejected on the basis as set forth for claim 10 discussed above, e.g., the workpiece is the glass substrate (12, Sakino et al.'s fig. 2), and the electronic device is the color TV having the glass substrate, which becomes the color filter through ink jet technologies.

Allowable Subject Matter

10. Claims 3-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

In regard to:

Claims 3-5:

The primary reason for the allowance of claims 3-5 is the inclusion of the limitation of a water head adjusting means for adjusting a water head of said function liquid ejection head relative to said function liquid tank by vertically moving said function liquid droplet tank based on the result of measuring by said gap measuring means. It is this limitation found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior.

Claims 6 and 7:

The primary reason for the allowance of claims 6 and 7 is the inclusion of the limitation of a computing means for computing the workpiece gap based on a result of measurement by said position measuring means. It is this limitation found in each of the

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claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHIH-WEN HSIEH
PRIMARY EXAMINER


Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH



Jan. 7, 2005